

REMARKS

Claims 1-20 are all the claims presently pending in this application. Claims 1, 11-12 and 18 have been amended to more particularly define the claimed invention.

It is noted that the amendments are made only to more particularly define the invention and not for distinguishing the invention over the prior art, for narrowing the scope of the claims, or for any reason related to a statutory requirement for patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

The drawings, Specification, and claims are objected to. Applicant has amended the Specification and provides new drawing figures in a manner believed fully responsive to all points raised by the Examiner. The amendments to the Specification and new drawings do not constitute new subject matter.

Applicant has provided new drawings of Figs. 6A and 6B further detailing the originally disclosed subject matter found in the Specification, for example, at page 17, lines 4-14, and in the drawings, for example in Figs. 2A and 2B. Applicant respectfully traverses the objection to the Specification and maintains that the above exemplary disclosure of the originally filed application provides proper support for Applicant's claimed invention in the subject matter of claim 1 at lines 11-14, and claim 20 at lines 17-20.

Claims 1-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by Yoshida et al., JP 2003-021287.

Claims 18-19 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hoskins et al., U.S. Pat. No. 4,640,534.

These rejections are respectfully traversed in view of the following discussion.

I. APPLICANT'S CLAIMED INVENTION

The claimed invention (as defined, for example, by independent claim 1) is directed to a piping connector including, a socket in a tubular shape for attaching to an end of one pipe and a plug in a tubular shape for attaching to an end of an other pipe. The socket comprises a pair of notched grooves at peripheral opposite sides, and the notched grooves are mounted with a stopper comprising a U-shape. The plug comprises a first taper portion, a flat portion and a second taper portion extending from a front end side and along an axial direction of the plug, and a groove for fitting the stopper being formed at a ridge portion of the second taper portion. An inner periphery of the socket is arranged with a seal ring for sealing between the inner periphery of the socket and an outer periphery of the plug in an airtight connection, and a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is equal to or less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion on the plug between the flat portion and the first taper portion.

Conventionally, piping connectors of the prior art, in a procedure of inserting the plug into the socket, before the seal ring passes a transition portion between a first taper portion to a flat portion, the diameter of the stopper is expanded while being brought into contact with a second taper portion and therefore, there poses a problem where an inserting resistance becomes extremely large. (Application at page 3, lines 5-12.)

The claimed invention (e.g., as recited in claim 1), on the other hand, includes *an*

inner periphery of the socket is arranged with a seal ring for sealing between the inner periphery of the socket and an outer periphery of the plug in an airtight connection, and wherein a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is equal to or less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion of the plug between the flat portion and the first taper portion. This is feature of the invention is important, since at a time point at which the seal ring reaches the radius portion, the stopper is not brought into contact with the second taper portion yet and therefore, at a time point at which the inserting resistance by the seal ring becomes the maximum, a resistance by the stopper is not generated yet or brought into an extremely small state. (Application at page 6, lines 5-11.)

II. THE PRIOR ART REJECTIONS

A. The 35 U.S.C. § 102(b) Rejection over Yoshida et al., JP 2003-021287

The Examiner alleges that Yoshida et al., JP 2003-021287, (Yoshida), teaches the invention of claims 1-20.

Applicant maintains, however, that Yoshida does not teach or suggest, “wherein a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is equal to or less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion on the plug between the flat portion and the first taper portion.”

With respect Applicant’s independent claims 1 and 20, nowhere in Yoshida is there

any teaching or suggestion of:

- (1) a first distance in the axial direction of the plug 21 between:
 - a) a plug contacting portion of the stopper 60, and
 - b) a plug contacting portion of the seal ring 36,being equal to or less than
- (2) a second distance in the axial direction of the plug 21 between:
 - a) an initial stopper 60 contacting portion of the plug, and
 - b) an initial seal ring 36 contacting portion on a radius portion (between 22 and 23) on the plug 21 between a flat portion 23 and a first taper portion 21.

Yoshida's Fig. 7 is the most relevant drawing that demonstrates the lack of any disclosure with respect to a first distance between the stopper 60 and the seal ring 36 relative to a second distance on the plug between an initial stopper 60 contacting portion of and an initial seal ring 36 contacting portion.

Indeed, it is unclear from Yoshida where exactly the stopper 60 initially makes contact with plug 21 surface 24, and where the seal member 36 initially makes contact with the plug 21 radius portion between taper portion 22 and flat portion 23. If either of these positions cannot be determined from the disclosure of Yoshida, then there can be no comparison with the distance between the plug contacting portion of the stopper 60 and the plug contacting portion of the seal ring 36.

With respect to Applicant's independent claim 18, Yoshida fails to teach or suggest, "sliding said plug into said stopper such that after said seal ring reaches the radius portion of said plug, the stopper initially makes engaging contact with the plug."

Again, Yoshida's Fig. 7 is the most relevant drawing that demonstrates the lack of any

disclosure with respect to sliding the plug 21 into the stopper 60 such that after the seal member 36 reaches a radius portion between taper portion 22 and flat portion 23 of the plug 21, the stopper 60 initially makes engaging contact with the plug 21.

Indeed, it is unclear from Yoshida where exactly the stopper 60 initially makes contact with plug 21 surface 24, and where the seal member 36 initially makes contact with the plug 21 radius portion between taper portion 22 and flat portion 23. Again, if either of these positions cannot be determined from the disclosure of Yoshida, then Yoshida fails to teach the stopper initially making engaging contact with the plug 21 after the seal member 36 reaches the radius portion between taper portion 22 and flat portion 23 of the plug 21.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection since the alleged prior art reference to Yoshida fails to teach or suggest each element and feature of Applicant's claimed invention.

B. The 35 U.S.C. § 102(b) Rejection over Hoskins et al., U.S. Pat. No. 4,640,534

The Examiner alleges that Hoskins et al., U.S. Pat. No. 4,640,534, (Hoskins), teaches the invention of claims 18-19.

Applicant maintains, however, that Hoskins does not teach or suggest, "*sliding said plug into said stopper such that after said seal ring reaches the radius portion of said plug, the stopper initially makes engaging contact with the plug.*"

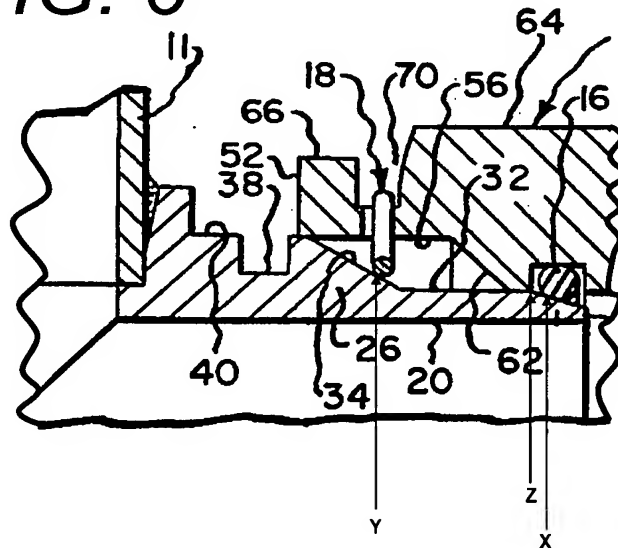
The Examiner equates Applicant's second tapered portion of the plug with a portion of portion 34 adjacent the cylindrical portion 36 of Hoskins.

However, it is clear from Hoskins Fig. 6, see below, that when the seal ring 16 engages male member 13 of coupling 10 at the first taper portion 30, (denoted below at

position "X"), before it transitions to the first reduced diameter cylindrical portion 32, (denoted below at position "Z"), spring clip 18 already engages the male member 13 of coupling 10 at the second taper portion 34, (denoted below at position "Y").

HOSKINS ET AL.

FIG. 6



Therefore, Hoskins fails to teach or suggest sliding the coupling 10 into the spring clip 18 such that after the seal ring 16 reaches the transition between portions 30 to 32 [i.e., Applicant's radius portion] of said coupling 10, the spring clip 18 initially makes engaging contact with the coupling 10.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection since the alleged prior art reference to Hoskins fails to teach or suggest each element and feature of Applicant's claimed invention.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-20, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date: July 25, 2007

Respectfully Submitted,

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AMENDMENTS TO THE DRAWINGS

Figs. 6A and 6B have been added based on the Examiner's request.

Specification support for the subject matter in Figs. 6A and 6B may be found in Figs. 2A and 2B, and in the Specification, for example, at page 17, lines 4-14.